ECONOMIC LEAFLETS

Published monthly by the Bureau of Economic and Business Research, College of Business Administration, University of Florida, Gainesville. George B. Hurff, Editor

Signed articles are by members of the Faculty of the University of Florida or by guest contributors. The views and opinions expressed are those of the author and are not to be construed as official views of the University.

VOL. XX, NO. 3 Entered as second-class matter December 6, 1941, at the post office at Gainesville, Florida, under Act of August 24, 1912. MARCH, 1961

Florida's Sugar Industry

L. A. REUSS, *Agricultural Economist*

Cane sugar production is an important industry in Florida. The value of sugar produced and processed in the state exceeded $20 million in 1960-61. More than 50,000 acres were used to produce sugar cane for sugar. Three mills operating for extraction of raw sugar represent an investment of perhaps $10 million. Employment in the fields and the mills provides permanent and seasonal payrolls of importance to the economy of the state and the local producing areas.

Florida sugar cane growers and processors have operated under an economic, political, and institutional framework that has included an International Sugar Agreement, the United States sugar program, and many preferential trade arrangements between and within blocs of sugar-producing countries. The latter, however, have little or no effect on the Florida sugar industry. The International Sugar Agreement has had as its primary objective the stabilization of world-free sugar prices through use of production controls and export quotas. The United States sugar program has sought among other things to protect and enhance the incomes of domestic sugar producers and to regulate sugar imports in accordance with the national interest. (See USDA, CSS, Sugar Division, Sugar Report No. 91, November, 1959, "The United States Sugar Program.") Domestic producers have been substantially insulated from changes in world sugar prices. Recently dramatic political and economic changes outside the United States have curtailed our dependable sources of large quantities of relatively low-priced sugar.

The Sugar Industry

Sugar is a world commodity and is grown in many countries. Florida, along with Louisiana, produces and processes sugar cane, a giant tropical grass. Certain northern and western states produce and process sugar beets, a temperate-zone root crop. In both cane and beet areas, mills or factories, as well as farms and fields, are required.

Cane and beets are too bulky for long-distance hauling so mills usually are located near producing areas. With both cane and beets, sugar-containing juices must be extracted, to some degree color and impurities must be removed, water boiled off, and solids or crystals formed and removed. Juice is removed from beets by a diffusion process; it passes by osmosis from plant cells to the thinner surrounding fluid. Crystalline sugar is the final product. Juice is squeezed out of cane stalks by shredders and crushers. Processing of cane juice may be halted at any one of several stages, resulting in various grades of sugar. About 95 per cent of Florida's raw sugar is shipped to Savannah, Georgia, for refining. Differences in tonnage of the raw material, content of sucrose, efficiency of extraction, and efficiency of recovery all affect per acre yields of final sugar. Yields of sugar in short tons, raw value, per harvested acre for domestic producing areas in 1959 averaged as follows: Louisiana, 1.8; Florida, 3.8; Puerto Rico, 3.2; Hawaii, 8.8 (18 to 24 months); and Mainland Beet Area, 2.6 tons.

Major by-products of the industry are molasses and pulp. The weight of the molasses is about one-fourth of the weight of the sugar recovered. Molasses is presently or potentially a competitive resource in production of feeds, rum, yeast, vinegar, solvents, plastics, rayon, synthetic rubber, antifreeze, and fuel alcohol. Pressed beet pulp, equivalent to perhaps half the weight of the raw crop and containing 8 to 10 per cent dry matter, is a valuable feedstuff, and is often the basis for a diversified crop and livestock type of farming. Because bagasse, the residue from sugar cane, is used as a fuel or industrial raw material (building board, paper, etc.) rather than as a feed and because cane is a perennial crop, sugar cane areas tend to be specialized monocultures. In some countries, local and national revenues depend substantially upon cane sugar alone. In Florida, the commercial sugar industry is in a specialized area of winter vegetables and adds to the diversity of agriculture.

The Florida Situation

Although Florida produces only a small part of the national sugar requirements, it is believed that the state has the potential to increase production substantially if such action is in the national interest. In the past, cane acreage and mill capacity were restricted because of mar-

---

AUTHOR'S NOTE: The views expressed in this paper are those of the author and do not necessarily represent the views of the Farm Economics Research Division, Agricultural Research Service, the United States Department of Agriculture, or the Florida Agricultural Experiment Station.

Sent free to Florida residents requesting name on mailing list. Additional copies 10¢ each.

keting quotas and proportionate share acreages. Because suitable land is available and rates of returns to producers on the better soils are favorable, growers and processors want to expand. Technical knowledge, labor, and capital are available and have been augmented recently by transfers from Cuba. Interest in sugar cane production is very high now but is restrained by uncertainties concerning the rules for establishing quotas and proportionate share acreages if these regulations are to be reimposed in the future.

One small area and one large production area are distinguished in Florida. The former is at Fellsmere in Indian River County. It consists of about 7,000 acres of sugar cane and a small mill. The major production area lies along the southern border of Lake Okeechobee. Here are two mills and 44,000 acres of sugar cane (Table 1).

Land developed in the Okeechobee-Everglades Agricultural Area is used mainly for winter vegetables, sugar cane, and pasture. The major ditches and dikes of the Central and Southern Florida Flood Control District serve this area. However, the extent and degree of water control vary. Farm drainage and water-control facilities, field ditches and dikes, gates, pumps, land clearing, and land leveling are needed before cultivation. Further from the lake, the frost hazard may become greater, water control may become more difficult, and the muck may be shallower. Deep muck soils near the lake are considered best for sugar cane. Average yields in this area for 1950-1959 were 38 tons per harvested acre, more than twice as high as in the Fellsmere area (Table 2).

An increasing interest in expanding the Florida sugar industry is apparent. Local reports indicate an interest in expanding mill facilities in the Everglades area in an effort to augment the current total daily mill capacity of 10,600 tons. A group of individuals and firms is also investigating the possibility of forming a cooperative in the Lake Okeechobee-Everglades Agricultural Area for the purpose of increasing the production and processing of sugar cane.

United States Policy Problems

World sugar supplies, prices, and trade have been subject to abrupt changes in policies of governments with respect to quotas, subsidies, tariffs, and trade arrangements. In times of war, producing areas were invaded and shipping interrupted. The policies of governments were often based on considerations of politics and foreign exchange control. Preferential trade arrangements are widespread. Examples are the quota system under the U. S. Sugar Act and the British Commonwealth Sugar Agreement.

From 1789 to 1890, a sugar tariff ranging from 1 to 3.5 cents per pound was in effect in the United States largely for revenue purposes. By treaty, Hawaiian sugar was admitted duty free after 1876. Louisiana and Hawaii enjoyed substantial growth in cane production during this period.

From 1890 to 1894, the tariff was removed but a 2-cent bounty was paid for domestic production. The free market aided Cuba, but Hawaii suffered the loss of her preferential position.

A tariff to protect United States producers was in effect from 1894 to 1934. Free-trade status was extended to Puerto Rico in 1901 and to the Philippines in 1909. Preferential status was extended to Cuba in 1902. World production increased first in response to high prices during World War I, then to mounting protective tariffs and self-sufficiency drives in countries that were formerly importers. Better methods of cultivation and processing also increased production. Cuba and other sugar-producing countries dependent upon this one crop suffered from both low prices and loss of markets.

Under the Sugar Act of 1934 (and subsequent acts) and the Reciprocal Trade Agreement Program of 1934, emphasis shifted away from tariffs toward quotas as an instrument of policy. Cuba had enjoyed a 20-per-cent tariff preferential since the Convention of Commercial Reciprocity of 1902. In 1934 and 1935, quotas acted to cut production in the United States and the Philippines. Expansion in United States requirements was shared proportionately by domestic and foreign areas under the terms of the Sugar Act of 1937. The Sugar Act of 1948 provided for fixed quotas for domestic areas and the Philippines and flexible quotas for foreign areas. Cuba was authorized to supply 95 per cent of all Philippine deficits and 98.64 per cent of all increases in our requirements. In 1951, the participation in growth was changed to 96 per cent. By amendments adopted in 1956, Cuba retained its previous

Table 1.—Sugar Cane Acreage Planted 1950-51 Through 1960-61 and Acreage Harvested for Sugar 1950-51 Through 1959-60, by Areas, Florida

(*In thousands of acres*)

Crop Year	Acreage Planted*			Maximum Acreage Permitted under U.S. Sugar Act	Harvested for Sugar		
	Total	Okeechobee-Everglades Area	Indian River Area		Total	Okeechobee-Everglades Area	Indian River Area
1950-51	39.5	33.9	5.6	No limit	37.4	32.1	5.3
1951-52	40.0	33.7	6.3	No limit	38.9	32.8	6.1
1952-53	43.9	37.3	6.6	No limit	42.8	36.6	6.2
1953-54	45.1	38.6	6.5	No limit	44.5	38.2	6.3
1954-55	43.1	37.3	5.8	39.6	38.6	33.1	5.5
1955-56	41.2	35.9	5.3	36.1	34.8	29.9	4.9
1956-57	37.2	32.6	4.6	31.2	30.1	26.0	4.1
1957-58	38.1	32.8	5.3	35.9	32.6	28.6	4.0
1958-59	38.0	32.7	5.3	35.9	34.4	29.6	4.8
1959-60	47.5	**40.7	**6.8	†47.5	46.4	**39.6	**6.8
1960-61	50.9	44.0	6.9	No limit	—	—	—
Averages	42.2	36.3	5.9	—	‡38.0	‡32.6	‡5.4

Source: Florida Agricultural Stabilization and Conservation Committee.

* Acreage planted 1950-51 through 1953-54. Acreage measured 1954-55 through 1960-61.

** Estimated.

† Proportionate shares acreages were revised in March, 1959, permitting harvest of an additional 7,587.7 acres.

‡ Ten-year average 1950-51 through 1959-60.

Table 2.—Production and per Acre Yields of Sugar Cane and Sugar, Florida, 1950-51 Through 1959-60

Crop Year	Production						Yields					
	Sugar cane processed for sugar			Sugar Production			Sugar cane processed for sugar			Sugar Production		
	Total	Okeechobee-Everglades Area	Indian River Area	Total	Okeechobee-Everglades Area	Indian River Area	Total	Okeechobee-Everglades Area	Indian River Area	Total	Okeechobee-Everglades Area	Indian River Area
	Thousand Tons						Tons per Acre					
1950-51	1,169	1,075	94	109.3	—	—	31.3	33.5	17.8	2.92	—	—
1951-52	1,260	1,149	111	122.0	109.5	12.5	32.4	35.0	18.2	3.13	3.34	2.04
1952-53	1,495	1,391	104	152.0	140.0	12.0	34.9	38.0	16.8	3.55	3.82	1.93
1953-54	1,453	1,333	120	150.9	137.0	13.9	32.6	34.9	19.0	3.39	3.59	2.20
1954-55	1,258	1,166	92	134.8	124.5	10.3	32.6	35.2	16.7	3.49	3.76	1.87
1955-56	1,160	1,081	79	117.4	108.8	8.6	33.4	36.1	16.3	3.37	3.63	1.78
1956-57	1,197	1,118	79	128.0	119.9	8.1	39.7	43.0	19.1	4.25	4.61	1.96
1957-58	1,358	1,278	80	134.0	126.4	7.6	41.6	44.7	19.8	4.11	4.42	1.90
1958-59	1,303	1,220	83	135.5	127.2	8.3	37.9	41.1	17.4	3.94	4.29	1.74
1959-60	1,771	*1,628	*143	172.5	—	—	38.2	*40.0	*21.0	3.72	—	—
Average 1950-51 through 1959-60	1,342	1,244	98	135.6	**124.2	**10.2	35.3	38.4	18.2	3.56	**3.90	**1.94

Source: Florida Agricultural Stabilization and Conservation Committee.

* Estimated.

** Eight-year average 1951-52 through 1958-59.

high participation in our requirements up to 8,350,000 tons but shared further growth requirements with other supplying areas, except the Philippines. Cuban participation in new growth was placed at 29.59 per cent.

Under United States sugar legislation, the Secretary of Agriculture determines each December how much sugar will be needed to fill requirements for the following year in the continental United States, Hawaii, and Puerto Rico; assigns a quota share of the market to each domestic and foreign-producing area; reallocates deficits in quotas; establishes any marketing allotments of quotas among processors; assigns proportionate shares in acres, sugar cane, beets, or sugar to producers; and makes conditional payments to domestic producers if they comply with production allotments, regulations governing child labor and field-workers, and fair price determinations. The rate of conditional payment is 80 cents per 100 pounds of sugar produced by a grower up to 350 short tons. On production beyond that the rate of payment per hundred weight declines. Conditional payment funds are appropriated by Congress. However, an excise tax of 0.5 cents a pound paid by processors, refiners, and importers on domestic and foreign sugar for direct consumption yields revenue that exceeds the cost of the program.

As has been stated, Cuba was accorded a 20-per-cent tariff preference under the Convention of Commercial Reciprocity of 1902. Her preferential treatment increased temporarily under the U.S.-Cuban Reciprocal Trade Agreement of 1934. Since 1948, the tariff on Cuban sugar has been 0.5 cents per pound as compared with the most favored nation rate of 0.625 cents per pound. Before World War I, Cuba sold us about 2 million tons of sugar, during the 1920's about 3.5 million tons, and during World War II and thereafter about 3 million tons. In 1959, the average New York spot Cuban raw sugar price of 6.24 cents per pound could be broken down as follows: tariff, 0.50 cents, ocean freight and insurance from Cuba to New York, 0.39 cents, resulting in an average f. a. s. Cuban price of 5.35 cents per pound. This compares with an average price of 2.97 cents per pound for Cuban sugar sold for export to the world market in 1959. The difference is

Table 3.—United States Sugar Quotas and Purchase Allocations for 1960, as of September 23, 1960*
(In short tons, raw value)

Area and Country	Initial Amounts as of December 17, 1959	Totals as of September 23, 1960
Quotas		
Domestic beet	2,043,480	2,514,945
Mainland sugar	628,779	773,873
Hawaii	1,140,462	*940,444
Puerto Rico	1,192,498	*893,620
Virgin Islands	16,261	*8,618
Total domestic	(5,021,500)	(5,131,500)
Republic of the Philippines	980,000	980,000
Cuba	3,119,655	2,419,655
Other foreign countries	278,845	432,945
Total foreign	(4,378,500)	(3,832,600)
Total quotas	(9,400,000)	(8,964,100)
Purchase Allocations		
Dominican Republic	0	**321,857
Mexico	0	284,628
Republic of the Philippines	0	176,426
Peru	0	135,000
Brazil	0	100,347
British W. Indies and British Guiana	0	92,765
All other	0	88,977
Sub-total	0	(1,200,000)
Not apportioned	0	235,900
Total allocations	0	(1,435,900)
Grand totals	9,400,000	10,400,000

Source: USDA, CSS, Sugar Division, Sugar Reports Nos. 100 and 102.

* Full quotas remain available despite deficits.

** Payment to the U. S. Government of two cents per pound required in advance of entry of the sugar.

a quota premium of 2.38 cents per pound. The United States price has been less than 2 cents above the world price much of the time since 1952. Only briefly in late 1950, 1951, and in early 1957 has the United States price been below the world price.

On July 6, 1960, the Sugar Act was extended through March 31, 1961, and the determination of the Cuban quota was delegated to the President. Except for the admission of a few cargoes en route, Cuban sugar was cut off and replacements for the Cuban quota, so-called non-quota purchase allocations, were authorized in accordance with statutory formula. Almost 1.2 million tons of such sugar were entered before the end of 1960 (Table 3). In a similar way, 824,000 tons of non-quota purchase allocations were authorized for the first three months of 1961—over 90 per cent of that total to the Philippines, Peru, the Dominican Republic, and Mexico.

Acreage restrictions in the Mainland Cane Area were taken off in March, 1959, and the Mainland Cane Area quota was not allotted to individual sugar processors after the rescission of the 1958 allotment order late in that year. The year 1961 is the first year since 1952 without any production restrictions in any domestic area.

Changes in non-quota purchase allocations perhaps may be considered somewhat less permanent than quota changes. Thus recent actions serve to underline the uncertainties in the situation and the need for producers to consider the following factors: (1) existing United States sugar legislation extends only through March 31, 1961; (2) many countries believe that they offer a dependable alternative to recently canceled sources of supply; (3) requests for new and additional quotas may greatly exceed recently canceled quotas; (4) should political conditions outside the United States change, the United States may want to resume trade in sugar with former suppliers; and (5) changes in quotas and purchase allocations build vested interests in some places and destroy them in other places with the possibility of serious dislocation of the economies of local areas and of entire countries.